U.S. Department of Transportation
United States Coast Guard

United States Coast Guard
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COMDTINST 4790.2A

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COMMANDANT INSTRUCTION 4790.2A

Subj: COAST GUARD MODULE TEST AND REPAIR (MTR) PROGRAM

Ref: (a) Afloat Supply Procedures Manual, COMDTINST M4400.17 (Series)
(b) Ordnance Manual, COMDTINST M8000.2 (Series)
(c) Naval Engineering Manual, COMDTINST M9000.6 (Series)

1. PURPOSE. This Instruction defines the maintenance policies and procedures for test and repair of electronic modules (EM) and circuit card assemblies (CCA) contained in Hull, Mechanical, and Electrical (HM&E) and Navy-Owned Ordnance (NAVORD) equipment. It applies to Coast Guard activities involved in the maintenance and material support of this equipment.

2. ACTION. Area and District Commanders, Commanders of Maintenance and Logistics Commands, Commanding Officers of Headquarters Units, Assistant Commandants for Directorates, Chief Counsel, and Special Staff Offices at headquarters shall ensure compliance with the provisions of this Instruction.

3. DIRECTIVES AFFECTED. Coast Guard Module Test and Repair (MTR) Program, COMDTINST 4790.2 is cancelled.

4. DISCUSSION.

   a. Program Objective. The MTR Program is designed to reduce the high costs associated with depot repair of EMs and CCAs (hereafter referred to as Electronic Assemblies (EAs)) by providing technicians at the operational and intermediate maintenance levels with the ability to both screen suspected faulty EAs and repair them if possible.

   b. Program Components. The program has two distinct components:

      (1) Module Testing involves screening suspected faulty EAs to confirm the presence

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of a fault and then identifying the failed component(s). This involves interpreting the electrical characteristics of individual components and comparing the characteristics of suspected faulty EAs with baseline characteristics stored on a CD-ROM.

(2) Module Repair involves repairing damaged EAs and replacing individual failed components.

c. MTR Workcenter. A fully outfitted MTR workcenter consists of the following diagnostic test and repair equipment:

(1) The AN/USM-646 Electrical-Electronic Equipment Test Station (Huntron Tracker 5100DS) graphically displays the relationship between the voltage drop across and the current flow through an electronic component. This is known as a component's "signature." The test set steps the technician through the diagnostic testing process and enables comparison of individual component and electronic assembly signatures with those previously stored on a CD-ROM.

(2) The Huntron Tracker 2000 is a portable, stand-alone diagnostic tester. It is standard test equipment and displays component's signatures similar to the AN/USM-646 Test Station. It allows for more versatility of testing in-circuit components and equipment but does not allow comparison to values stored on CD-ROM.

(3) The Miniature/Microminiature (2M) Electronic Repair Station (PP 8087/U) consists of various power and hand tools, a microscope, and miscellaneous supplies and consumable materials required to repair EAs.

(4) A "Piece Parts" Allowance Parts List (APL) containing approximately 1,500 frequently used repair components.

d. Program Support. The Naval Undersea Warfare Center (NUWC), Field Engineering Office, Norfolk Detachment, is the Navy's In-Service Engineering Agent for the MTR Program. They provide life cycle support for the diagnostic test equipment and software.

e. Gold and Silver Disk CD-ROMs. NUWC issues two CD-ROMs quarterly containing diagnostic procedures and EA signature information called Gold and Silver Disks. Each disk contains the information indicated:

(1) Gold Disks. Diagnostic procedures on the Gold Disk are prepared by NUWC certified personnel. Component signature information, assembly and schematic drawings, component logistics data, and step-by-step test procedures are contained on the Gold Disk for all the included EAs. Three EAs are used to develop the component's signatures on the CD-ROM to compensate for varying component

tolerances between EAs. Each candidate EA goes through a series of rigorous Quality Assurance (QA) checks to ensure uniformity of data and testing procedures prior to inclusion on the Gold Disk.

(2) Silver Disk. Diagnostic procedures on the Silver Disk can be prepared by any MTR Program user. Only one EA is required to be "learned", drawings and logistics data need not be included, and only a limited QA check is performed prior to inclusion on the CD-ROM. In some cases, EAs on the Silver Disk are of Gold Disk quality with the only difference being the need to obtain an additional learn of a EA or other technical data.

5. POLICY.

a. All 378' WHECs, selected NESUs, and the Engineering and Weapons School at RTC Yorktown shall maintain fully outfitted MTR Workcenters. The 270' WMECs will maintain a limited screening capability. Certain other shoreside support activities may be outfitted in the future to evaluate the program's effectiveness in other Coast Guard environments.

b. Each activity has been outfitted with the equipment necessary to maintain a workcenter. Enclosure (1) indicates the equipment each activity is authorized.

c. The AN/USM-646 Test Station will be maintained in accordance with the User's Manual, NAVSEA ST821-AC-MMO-010. The 2M Repair Station will be certified (including personnel certification) in accordance with the 2M Certification Plan outlined in NAVSEA TE000-AA-PLN-010/2M (Rev 2). Each MLC shall establish procedures for scheduling and monitoring certification.

d. This program is not intended to replace any of the existing Coast Guard or Navy Depot Repair programs which will continue to operate under separate charters and policy directives. EAs that are Source, Maintenance, and Recoverability (SM&R) coded for repair at the depot level will continue to be returned to the depot for repair. Explanation of SM&R codes is contained in reference (a) and in each unit's CALMS/COSAL Manual.

6. PROCEDURES.

a. Progressive Level of Repair Hierarchy.

(1) All suspected faulty EAs shall be screened by the shipboard MTR facility. Those found defective and coded for organizational or intermediate level repair shall be repaired using the 2M tools and equipment.

(2) If ship's force is unable to repair the EA or if screening efforts are inconclusive, the EA will be sent to the NESU/WAT for further screening and repair.

(3) Cutters without MTR capabilities will send suspected faulty EAs directly to the NESU/WAT for screening.

(4) If NESU screening and/or repair efforts are inconclusive the EA will be returned to the depot (or discarded if coded as a consumable) and a new EA procured.

(5) Repaired EAs will be returned to either the equipment/system under repair or shipboard stores. All repaired EAs will be considered Condition "A" assets after a successful operational checkout.

b. Exceptions.

(1) Cutters with neither an onboard MTR capability nor a shoreside MTR facility in their geographical location may return EAs directly to the depot without screening.

(2) A suspected faulty EA may be returned to the depot without being screened by the NESU if the cutter does not hold an allowance spare for that component and operational commitments prevent further screening/repair action by the NESU within 72 hours.

7. RESPONSIBILITIES.

a. Commandant (G-SEN) shall:

(1) Serve as the program manager for the implementation of the Coast Guard MTR Program.

b. Engineering Logistics Center (ELC) shall:

(1) Provide technical direction to the program manager regarding implementation of the MTR Program;

(2) Establish Memorandums of Agreement (MOA) with appropriate Navy activities to maintain life cycle support of existing and future MTR facilities;

(3) Provide funding from the annual NAVORD program budget to maintain MTR Program capabilities (tools and other hardware);

(4) Identify training shortfalls and work with headquarters staff elements to ensure training reflects program changes;

(5) Monitor the effectiveness of the MTR Program afloat and ashore to establish future MTR site installations;

(6) Analyze data collected via the MTR Tracking System (MTRTS) to identify program weaknesses; and

(7) Pursue a progressive level of repair philosophy (SM&R Coding) for all HM&E and NAVORD equipment EAs;

c. Maintenance and Logistics Commands and Unit Commanding Officers shall:

(1) Implement MTR Program policy and procedures;

(2) Ensure all suspected faulty EAs are screened prior to returning them to the repair depot;

(3) Ensure personnel are formally trained in the operation and maintenance of the MTR equipment;

(4) Ensure 2M repair station and personnel are certified in accordance with Navy Certification Program directives (including funding);

(5) Maintain Piece Parts allowances, consumable materials, and miscellaneous support items;

(6) Identify training and material support deficiencies;

(7) Identify Gold/Silver disk candidates and assist in their development; and

(8) Report all screening actions and repairs via the MTR Tracking System;

d. Engineering and Weapons School, Reserve Training Center, Yorktown shall:

(1) Establish and maintain an MTR Facility as outlined in paragraph 5; and

(2) Provide MTR Program training as directed by Headquarters Training Managers.

8. FORMS/REPORTS. The Module Test and Repair Tracking System (MTRTS) software provides the ability to document, track, and generate reports of maintenance actions related to the screening, fault isolation, and repair of EAs. Collection of this maintenance action data will allow program managers to monitor component failures, adjust piece parts APL provisioning, and measure the effectiveness of this progressive level of screening and repair.

a. NUWC provides the lifecycle support for the MTRTS. This includes software deliveries and upgrades, and collection and compilation of data.

b. All MTR maintenance actions performed, including screening, fault/no fault found, and repairs accomplished, will be reported using the MTRTS. Reporting instructions are issued with the MTRTS software. 270' WMECs should provide screening efforts accomplished with the Huntron 2000 to the local NESU for inclusion in the NESU report.

c. Only MTR related maintenance action should be reported via the MTR Tracking System. All other maintenance actions should be reported in accordance with references (b) and (c).

E. C. KARNIS
Director of Engineering

Encl: (1) MTR Facility Equipment Configuration

Non-Standard Distribution:

B:c MLCs only
Other Agencies:
NSWC Crane Division (6038)
NAVSEA (041)
NUWC DET FEO Norfolk (201V)

MTR FACILITY EQUIPMENT CONFIGURATION

RTC	270 WMEC	378 WHEC	NESU	
1. Diagnostic Equipment				
a. Huntron Tracker 2000	X	X	X	X
b. AN/USM-646 Test Set		X	X	X
2. Diagnostics:				
a. Gold/Silver Disks		X	X	X
b. MTRTS		X	X	X
3. Miniature/Microminiature (2M) Repair:				
a. PP 8087 2M Repair Station		X	X	X
b. Piece Parts APL		X	X	X

NESU Boston
NESU Portsmouth
NESU Miami (MAT/WAT Key West)
NESU Seattle
NESU Alameda
NESU Alameda (MAT San Pedro)
NESU Honolulu